

Geometry, Geometry, Geometry

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Geometry

- The Bay-Delta Estuary has a shape.
- DSM2 has A, T, P to describe that shape.
- Geometry revision is lowest hanging fruit for model improvement.
- Use new geometry data, new datum, new tools (e.g. DEM, volume calculator)
- Develop systematic geometry revision protocol. Do it. Then validate.

Geometry

two related issues:

1. volume as $f(\text{tidal datum constituents})$
2. conveyance (A, T, P)

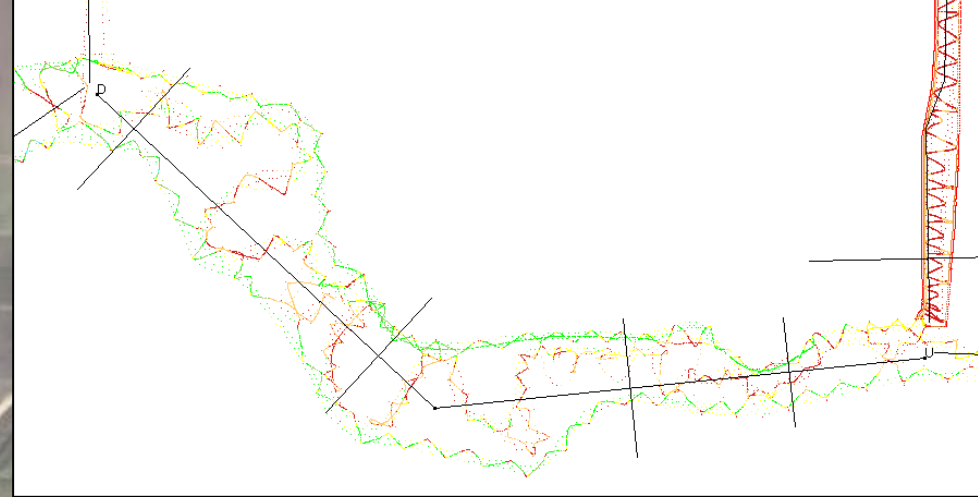
1. volume as $f(\text{tidal datum constituents})$

- Integrate cross-sections over reach length for tidal datum constituents.

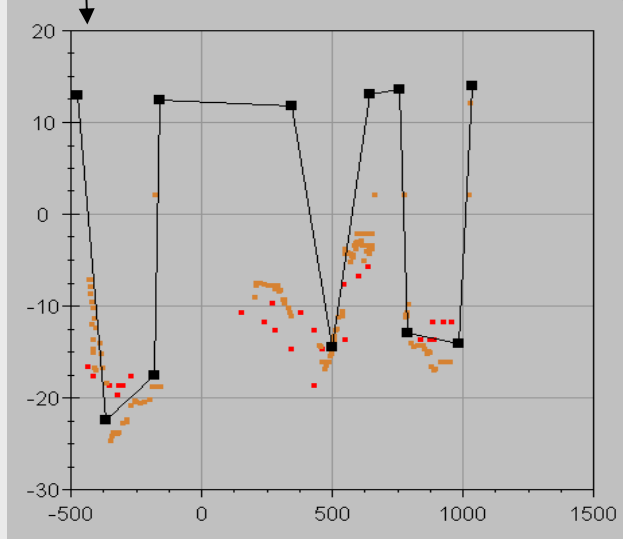


geometry/conveyance

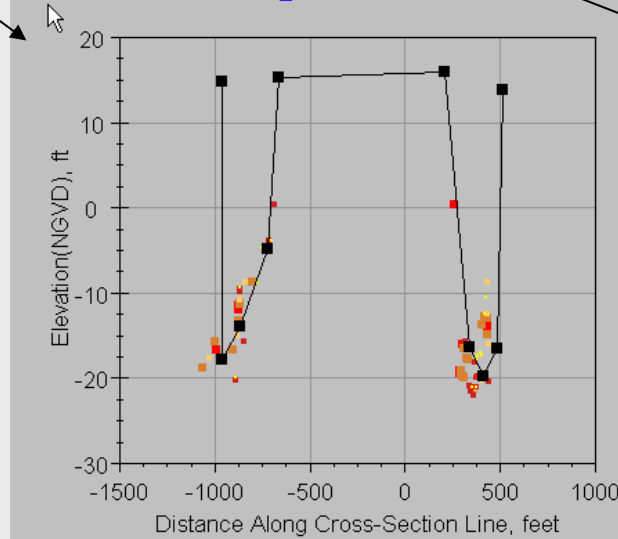
Disappointment Slough



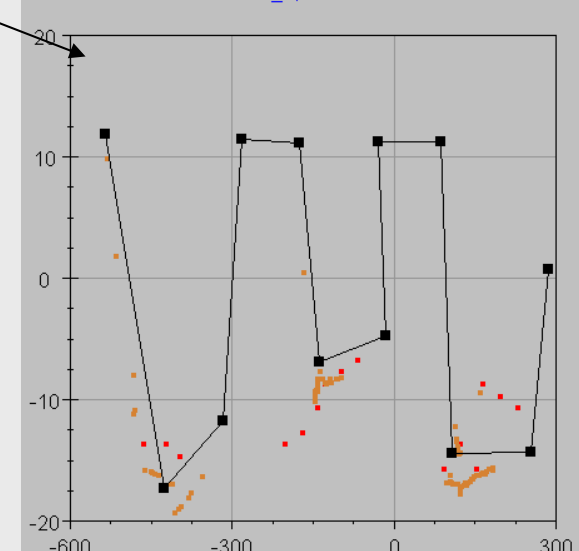
Cross-section 313_3, thickness=200.0 ft.



Cross-section 313_2, thickness=200.0 ft.



Cross-section 313_0, thickness=200.0 ft.



Integrating these three cross-sections, along the length of this channel, do we match the volume at low and high tide?

1. volume as $f(\text{tidal datum constituents})$

- match tidal prism where it's measured in dead end, zero flow sloughs:
 - Beaver Sl
 - Hog Sl
 - Sycamore Sl
 - Snodgrass Sl
 - Nurse Sl
 - Etc.

2. conveyance (A, T, P)

- shallow storage



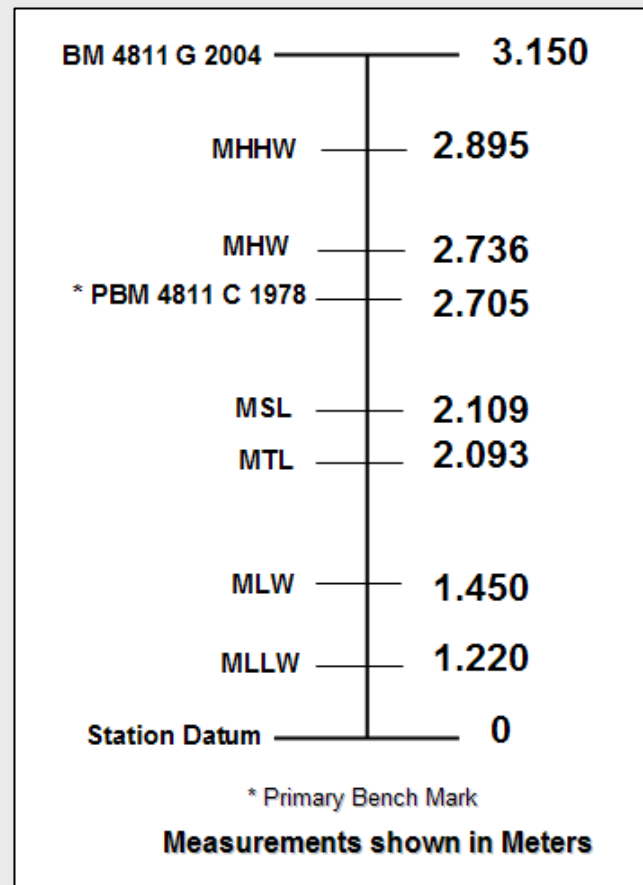
2. conveyance (A, T, P)

- shallow storage



2. conveyance (A, T, P)

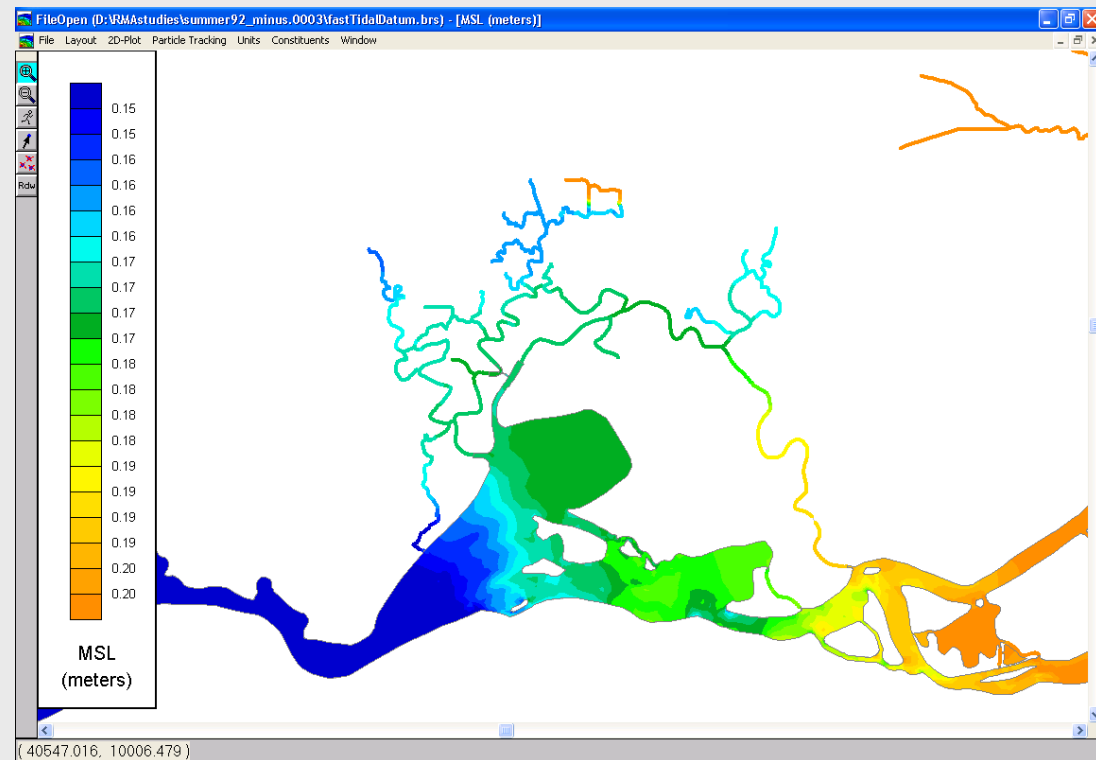
- Match local tidal datum range

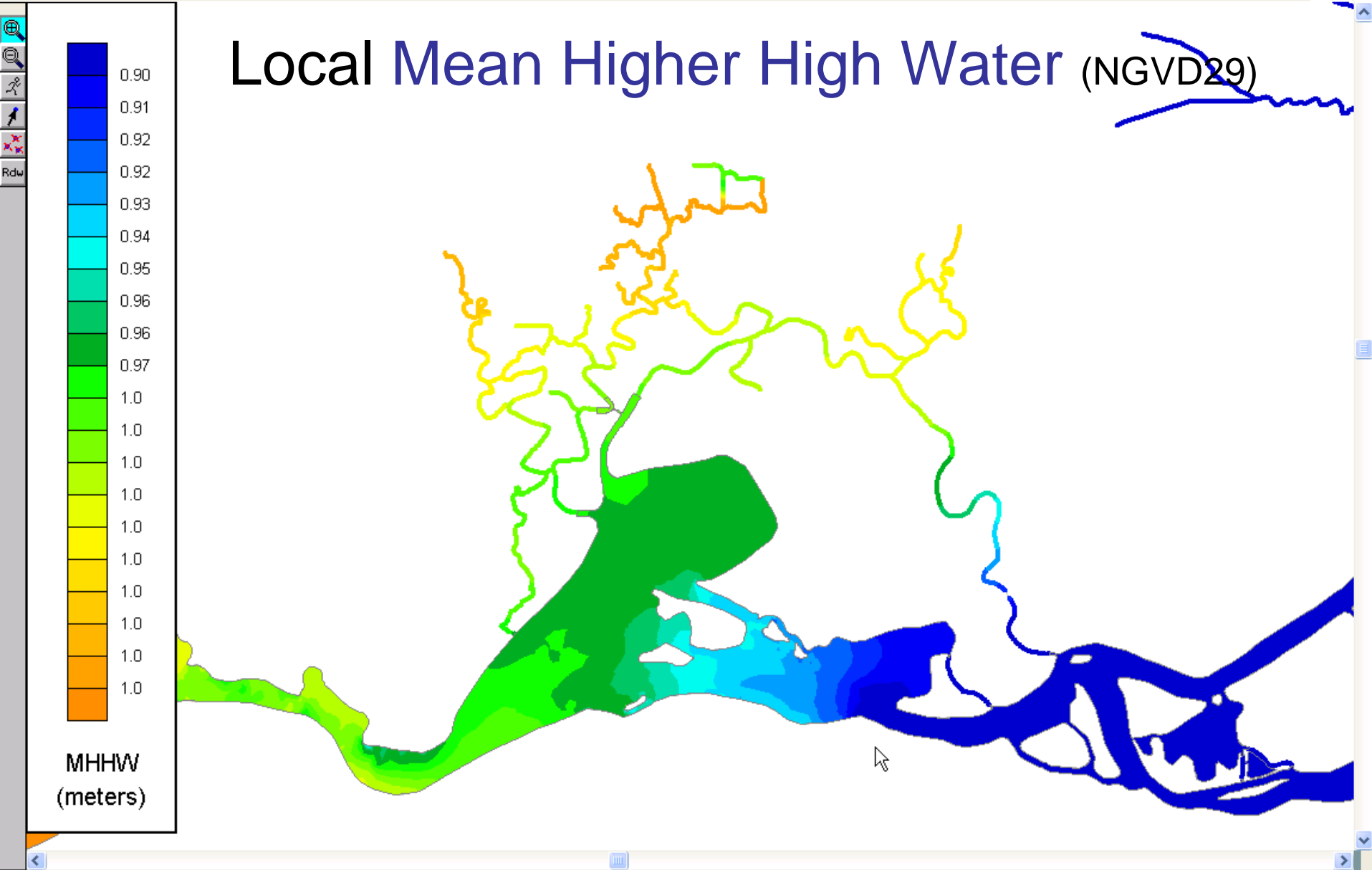


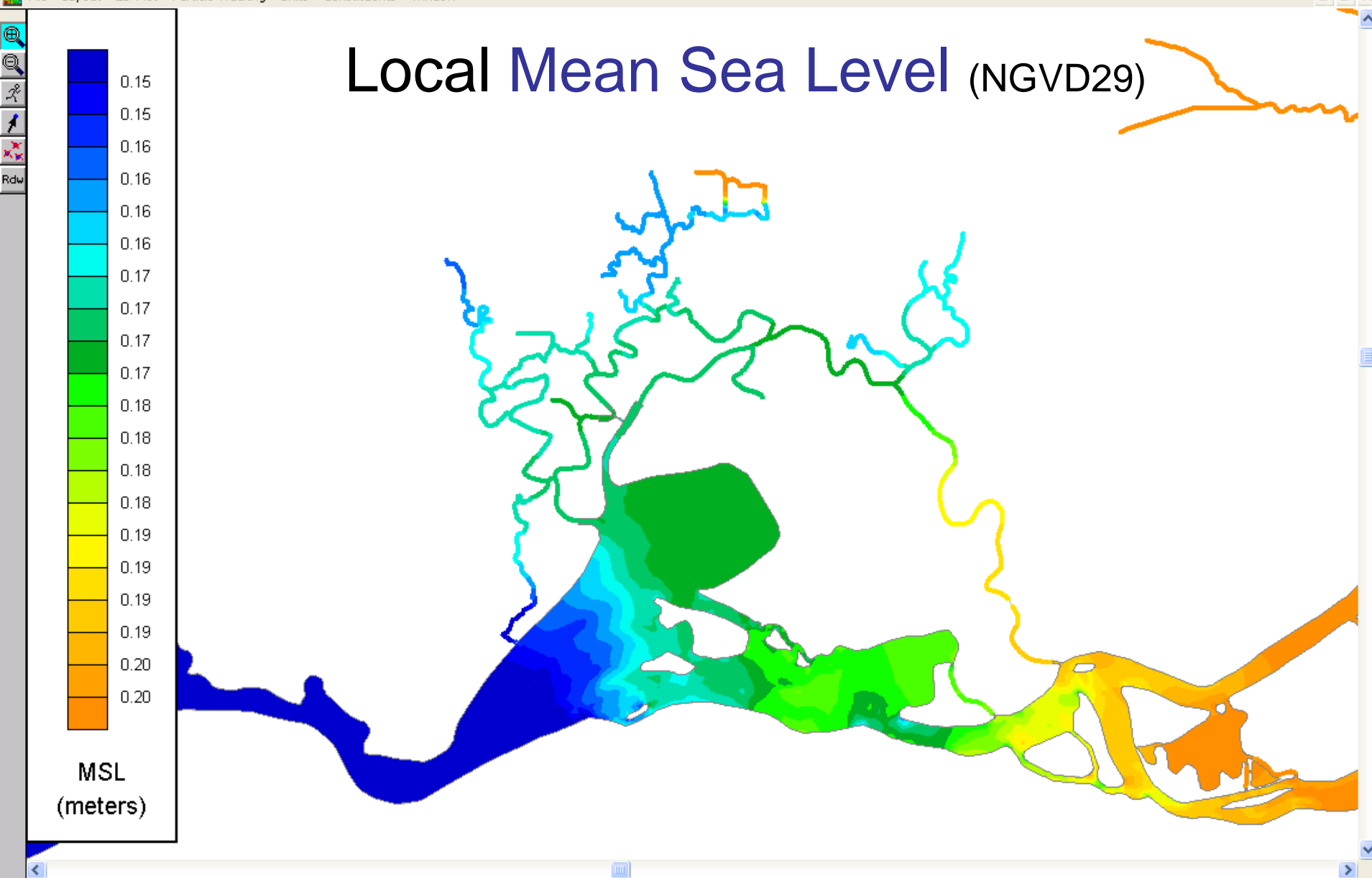
2. conveyance (A, T, P)

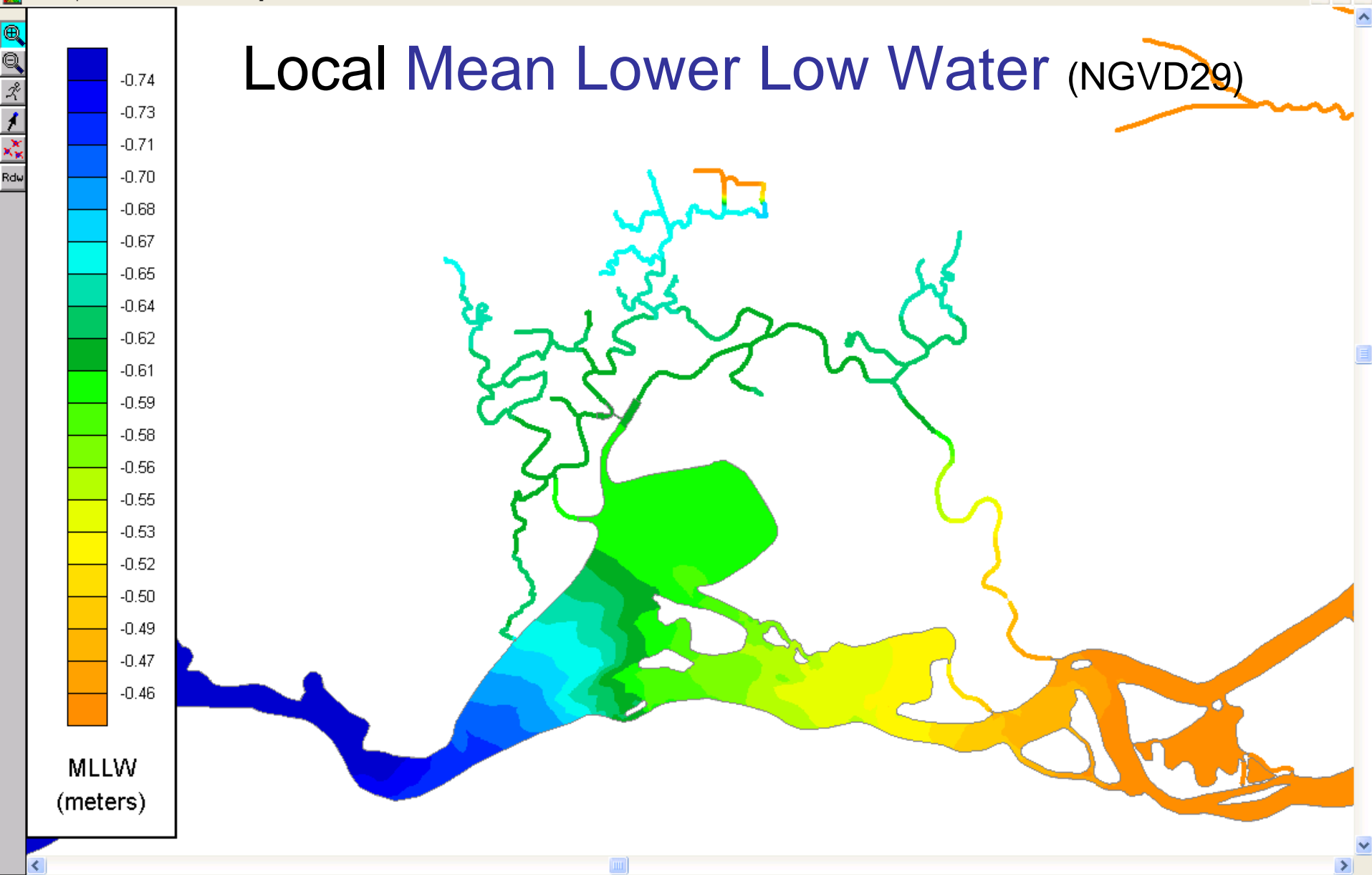
- Match spatial (“global”) tidal datum constituent means.

Generate spatial
difference plots
(Actual – Model)







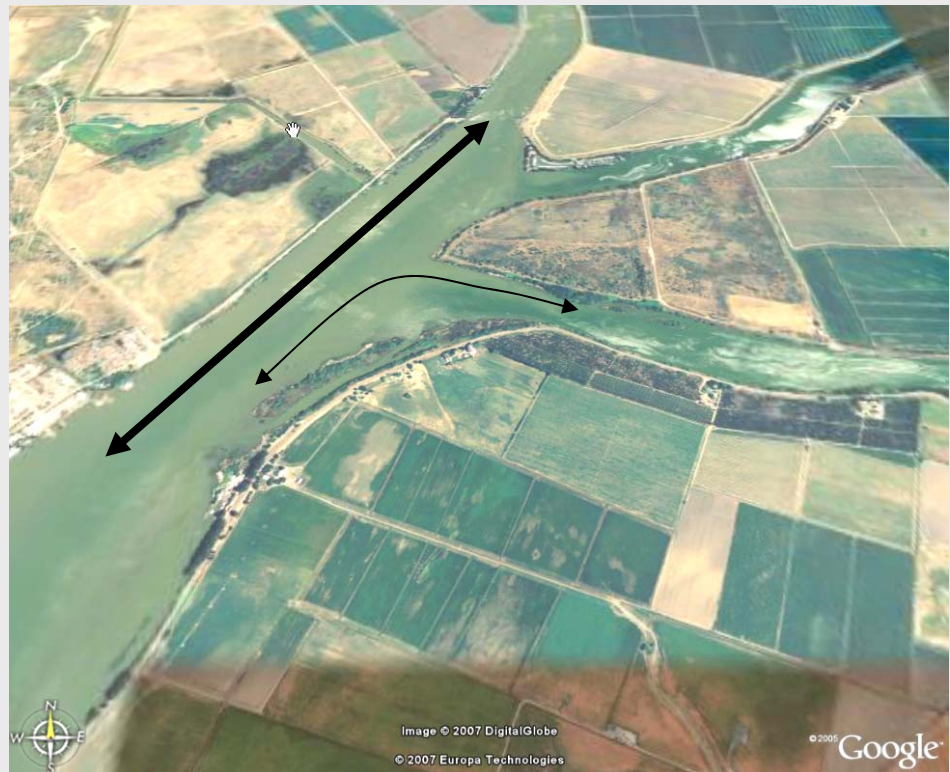


some higher order
geometry/conveyance issues

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- fudging junction momentum conservation
 - secondary currents, channel bends

directional
Manning's n ?



some higher order geometry/conveyance issues

- fudging junction momentum conservation
- Manning's n as $f(\text{water surface elevation})$

some higher order geometry/conveyance issues

- fudging junction momentum conservation
- Manning's n as $f(\text{water surface elevation})$
- tidal marsh flood plains and tidal prism

